

What is claimed is:

1. A construct for downmodulating an immune response in a subject, said construct
5 comprising an exposed surface, wherein said exposed surface has attached to it i) an antigen-
binding portion of an antibody that binds to a CTLA-4 molecule that is expressed on a T cell
of the subject, and ii) an MHC molecule selected from the group consisting of: a class II
molecule that is syngeneic to the subject, a class I molecule that is syngeneic to the subject,
and a class I molecule that is allogeneic to the subject.
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2. The construct of claim 1, wherein the antigen-binding portion is a single chain Fv
(scFv) molecule.
3. The construct of claim 1, wherein the single chain Fv (scFv) molecule binds to human
15 CTLA-4.
4. The construct of claim 2, wherein the scFv molecule is humanized.
5. The construct of claim 1, wherein the antigen binding cleft of the MHC molecule
20 comprises a peptide for which the immune response is specific.
6. The construct of claim 1, wherein the construct comprises a lipid bilayer.
7. The construct of claim 6, wherein the construct is an acellular construct.
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8. The construct of claim 6, wherein the construct is a cell.
9. The construct of claim 8, wherein the cell is a eukaryotic cell.
- 30 10. The cell of claim 9, wherein the cell is syngeneic to the subject.

11. The cell of claim 9, wherein the cell is allogeneic to the subject.

12. The construct of claim 1, wherein the antigen-binding portion of an antibody that
5 binds to a CTLA-4 molecule is attached to the exposed surface via a phosphatidylinositol-
glycan anchor.

13. The construct of claim 1, wherein the antigen-binding portion of an antibody that
binds to a CTLA-4 molecule is attached to the exposed surface via a transmembrane domain.
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14. The construct of claim 1, wherein the antigen-binding portion of an antibody that
binds to a CTLA-4 molecule is attached to the exposed surface via a chemical linkage.

15. The construct of claim 1, wherein the construct does not bind to CD28.
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16. A method of downmodulating a primary immune response in a subject comprising
administering the construct of claim 1 to the subject such that an immune response in the
subject is downmodulated.

17. A method of downmodulating an ongoing immune response in a subject comprising
administering the construct of claim 1 to the subject such that an immune response in the
subject is downmodulated.
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18. A method of downmodulating a immune response in a subject comprising causing a
25 cell of the subject to express an antigen-binding portion of an antibody that binds a CTLA-4
molecule, the CTLA-4 molecule that is expressed on a T cell of the subject, such that the
immune response in the subject is downmodulated.

19. The method of claim 18, wherein the antigen-binding portion is a single chain Fv
30 (scFv) molecule.

20. The method of claim 19, wherein the wherein the single chain Fv (scFv) molecule binds to human CTLA-4.

5 21. The method of claim 19, wherein the the scFv molecule is humanized.

22. The method of any one of claims 16-18, wherein the immune response is against an self antigen.

10 23. The method of any one of claims 16-18, wherein the immune response is against an non-self antigen.

24. The method of any one of claims 16-17, wherein the immune response is against an allogeneic antigen.

15 25. The method of any one of claims 16-18, wherein the immune response is mediated by CD4+ T cells.

20 26. The method of any one of claims 16-18, wherein the immune response is mediated by CD8+ T cells.

27. The method of claim 18, wherein the cell is a professional antigen presenting cell.

25 28. The method of claim 18, wherein the cell is further caused to express an MHC class I or an MHC class II molecule.

29. The method of claim 18, wherein the cell is transfected with a nucleic acid molecule encoding the antigen-binding portion of an antibody that binds CTLA-4.

30 30. The method of claim 29, wherein the cell is transfected ex vivo.

31. The method of claim 29, wherein the cell is transfected in vivo.

32. A method of preparing an allogeneic cell for transplantation into a subject comprising
5 causing the allogeneic cell to express an antigen-binding portion of an antibody that binds a CTLA-4 molecule expressed on a T cell of the subject to thereby prepare an allogeneic cell for transplantation into a subject.

33. A method of transplanting an engineered allogeneic cell to a subject comprising:
10 causing an allogeneic cell to express an antigen-binding portion of an antibody that binds a CTLA-4 molecule on a T cell of the subject to create an engineered allogeneic cell, and administering the engineered allogeneic cell to the subject such that the engineered allogeneic cell is transplanted to the subject.

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